

Forensic Science MS

Ability to Conduct Original Research

Goal Description:

Students and faculty engaged in research will publish or present results in the form of peer-reviewed journal articles or national conference proceedings.

Providing Department: Forensic Science MS

Progress: Ongoing

RELATED ITEMS/ELEMENTS -----

RELATED ITEM LEVEL 1

Students will Prepare Written Research of Publishable Quality

Learning Objective Description:

Students actively engaged in research projects sponsored by program faculty will develop the technical writing skills and scientific abilities required to publish their findings in journals or present their data at scientific meetings.

RELATED ITEM LEVEL 2

Student Preparation of Research Materials for Publication/Presentation

Indicator Description:

Students will contribute to the knowledge base of forensic science and produce research directed at improving the practice of forensic science. This may be demonstrated by publication of research in a peer reviewed scientific journal or national/international conference proceeding (e.g. American Academy of Forensic Sciences Annual Meeting). Publication of student research in journals and at national or international conferences serves to demonstrate the value and quality of the work to the forensic science and/or scientific community.

Criterion Description:

Program-sponsored research will result publication rates of 0.5 publication/student (50%) at the MS level. Publication rates will be calculated as follows: Number of publications involving MS students / number of full-time students enrolled during the academic year. Publications may include peer-reviewed journal articles or conference proceedings.

Findings Description:

In AY 23-24, there were 0.6 publications per MS student, which exceeded the objective for this criterion. This included 13 publications from 23 MS students. The 13 publications included 5 peer-reviewed journal articles and 8 conference proceedings. The 0.6 publications per MS student average is the highest in program history since this metric has been recorded in AY 14-25. In general, it is difficult to produce conference papers or publications during the MS program due to the timing of abstract deadlines and the fact that publications are typically submitted post-graduation. The recent increase in publications per MS student since AY 21-22 may reflect increased opportunities for virtual or hybrid conference presentations, but also likely reflects our increased efforts to publish MS student research (i.e., 3 peer-reviewed publications in AY 22-23 and 5 peer-reviewed publications in AY 23-24 compared to only 1 peer-reviewed publication in AY 21-22).

Attached Files

[Publications by AY 23-24.pdf](#)

RELATED ITEM LEVEL 3

Student Preparation of Research Materials for Publication/Presentation

Action Description:

While it is too early to determine the impact of our updated timeline and formatting for the capstone project, the emphasis the faculty have placed on MS student publications has delivered promising returns. The 0.6 publications per student average in AY 23-24 is the highest in program history since this metric began to be tracked in AY 14-15. The department will keep the updated capstone timeline and report formatting in place for the next assessment cycle to gauge the impact of these changes. Tentatively, it appears that encouraging first-year MS students to start talking to potential research advisors in the fall semester of their first year and formatting the capstone paper as a manuscript rather than a thesis will enable increased MS student peer-reviewed journal publications and conference proceedings.

Integration of Knowledge, Skills, and Abilities

Goal Description:

Students completing the MSFS will integrate knowledge, skills and abilities learned in the curriculum and formulate an independent research project to be conducted in an environment conducive to research and scholarly inquiry.

Providing Department: Forensic Science MS

Progress: Ongoing

RELATED ITEMS/ELEMENTS -----

RELATED ITEM LEVEL 1

MS Students will Demonstrate Competency in Research

Learning Objective Description:

Students completing the Master of Science in Forensic Science will demonstrate competency in technical writing and technical laboratory performance during their independent research project.

RELATED ITEM LEVEL 2

Capstone Research Report Scoring Methodology

Indicator Description:

Consistent faculty-developed scoring methodology will be applied to the capstone research report for FORS 6014 – Forensic Science Research. The scholarly report will demonstrate advanced discipline-specific knowledge, investigation, and problem-solving ability.

Criterion Description:

At least 90% of students will be assessed as “satisfactory” (comparable to a B) or higher (A) using the uniform faculty-developed rubric. The final report will be scored by each member of the committee, consisting of a minimum of three individuals (one of whom must be external to the department).

Findings Description:

There were 9 students who completed capstone research in AY 23-24. This does not include the 3 additional doctoral students who were involved in capstone research. All final report evaluations were satisfactory (earning a B or higher). All students received evaluations from two internal faculty and one external evaluator. The oral defenses were conducted in person and with a virtual Zoom option, which enabled increased participation from external evaluators. All students received satisfactory (B or higher) evaluations for their laboratory performance (100% As), technical writing (78% As and 22% Bs), and oral presentation (89% As and 11% Bs). The criterion for this objective was met during AY 23-24.

Attached Files

 [MS Research Performance AY 23-24.pdf](#)

RELATED ITEM LEVEL 3

Capstone Research Report Scoring Methodology

Action Description:

It is too soon to evaluate if the implemented changes to the capstone timeline and written capstone report format have significantly impacted capstone research report scores. The percentage of students who received an A for technical writing dropped from 89% in AY 22-23 to 78% in AY 23-24. However, the percentage of students who received an A for their oral presentation increased from 78% in AY 22-23 to 89% in AY 23-24. The department will continue to monitor capstone research report scores to assess the long-term impact of the alternative formatting introduced for AY 23-24. Minor modifications to how committee members submit their oral presentation evaluation will be explored for AY 24-25, including using a Qualtrics-based submission.

Job Readiness

Goal Description:

Graduates will possess the required theoretical knowledge and technical skill set to be effective in the workplace.

Providing Department: Forensic Science MS

Progress: Ongoing

RELATED ITEMS/ELEMENTS -----

RELATED ITEM LEVEL 1

Graduates will Acquire Necessary Workplace Skills

Learning Objective Description:

Graduates have developed the necessary knowledge, skills and abilities for successful employment in a forensic setting.

RELATED ITEM LEVEL 2

Employer Survey

Indicator Description:

An Employer Satisfaction Survey is conducted twelve months after graduation. Employers are asked to assess whether SHSU graduates possess the appropriate workplace skills. Using a scale of 1 to 4, (1=very unsatisfactory, 2=unsatisfactory, 3=satisfactory, and 4=highly satisfactory), employers assess job readiness.

Criterion Description:

At least 90% of all responses must be ranked as 3 (satisfactory) or 4 (highly satisfactory).

Findings Description:

There were 12 graduates in AY 22-23, including 10 graduates who sought employment and 2 students who continued into the PhD program. Of the 10 graduates who sought employment, there was an 80% response rate for the MS employer survey (8 responses out of 10 surveys). 100% of respondents were “satisfied” or “highly satisfied” for all categories, so the criterion for AY 22-23 was met. In addition, 100% of respondents said they would hire additional MS graduates in the future. Unfortunately, there was a 23% decrease since AY 21-22 in the percentage of respondents who were highly satisfied that graduates had appropriate workplace skills and were adequately prepared for the workplace. However, 100% of respondents were at least satisfied that graduates had appropriate workplace skills and were adequately prepared for the workplace.

The department offered the Texas Forensic Science Commission Licensing Examination to our graduating MS students through the Quality Assurance and Ethical Conduct in Forensic Science course. 100% of our MS students (n=11) passed the exam and will be able to enter the workforce having already passed the required licensing examination for employment in the state of Texas. This licensure offers our students an additional advantage during the application and hiring process and provides evidence of the knowledge they acquired during their graduate education.

Attached Files

[!\[\]\(c15650232aa6660c9deb34f3b82dcb72_img.jpg\) MS Postgraduate Preparedness AY 23-24.pdf](#)

[!\[\]\(1ed10657a19f9137278430c48fd18626_img.jpg\) MS Employer Satisfaction Survey 2023 Graduates AY 23-24.pdf](#)

RELATED ITEM LEVEL 3

Employer Survey

Action Description:

Even though there was a 23% decrease in the percentage of respondents who were highly satisfied with our graduates' workplace skills and preparation, 100% of respondents were at least satisfied with our graduates' workplace skills and preparation. Likewise, 100% of respondents said they would hire additional MS graduates in the future. The department will continue to monitor the employer satisfaction survey to verify the appropriate workplace readiness of our graduates. In addition, we will continue to provide our students with valuable hands-on experience with scientific instrumentation, exposure to critical thinking and problem-solving opportunities, and familiarization with industry standards. Incorporating the Texas Forensic Science Commission General Forensic Analyst Licensing Examination into the Quality Assurance and Ethical Conduct in Forensic Science course provides our graduating MS students with the opportunity to pass the licensure exam before graduation and provides a leg-up during the interview and hiring process. The department will continue to offer this licensure examination through the Quality Assurance and Ethical Conduct in Forensic Science course.

Postgraduate Success

Goal Description:

This performance indicator is a measure of post-graduate success with respect to employment in the area of forensic science or the pursuit of research or an advanced graduate degree.

Providing Department: Forensic Science MS

Progress: Ongoing

RELATED ITEMS/ELEMENTS -----

RELATED ITEM LEVEL 1

Postgraduate Employment or Placement

Performance Objective Description:

MS graduates will be employed in the area of forensic science or will pursue advanced graduate studies or research.

RELATED ITEM LEVEL 2

Job or Advanced Program Placement

KPI Description:

The number of MS graduates that are successfully employed in forensic careers or pursue advanced degrees or full-time research within 6 months of graduation.

Target Description:

Our departmental target is 90% of MS graduates being successfully employed in forensic careers or pursuing advanced degrees or full-time research within 6 months of graduation. The lengthy hiring process for federal positions, due to extensive background checks, may delay our graduates beyond the 6-month mark depending on when the job posting becomes available.

Results Description:

Post-graduate success during this assessment cycle was 83%. This is the first year the department has had less than 100% post-graduate success since AY 18-19. Even though our criterion was not met, it is important to note that 100% of the MS students who graduated from our program were employed within 6 months. The reason for the less than 100% post-graduate success is that we had three MS students leave the program between their enrollment in 2021 and their graduation in 2023. Even with this attrition, our 5-year and 10-year average post-graduate success is 95% and 94%, respectively.

For the second consecutive year, none of our MS students applied to transfer to the doctoral program. Our 10 MS graduates were employed within the forensic science field within 6 months of graduation. The breakdown of our cumulative MS student employment is research (23%), state (23%), county (23%), private (18%), city (8%), and federal (5%). Our overall discipline distribution is DNA

(39%), toxicology (29%), seized drugs (14%), trace (6%), firearms (4%), and other (i.e., latent fingerprints, questioned documents, and arson) (8%).

Attached Files

 [Postgraduate Success Flyer.pdf](#)

RELATED ITEM LEVEL 3

Job or Advanced Program Placement

Action Description:

The department will continue to assist students with finding employment, preparing their application materials, and providing career advice to continue our historical success with job placement. We will continue to encourage student involvement with professional development opportunities through the Graduate and Professional School, as well as opportunities through the Society of Forensic Scientists club. For the second year, the department did not have any MS students apply to transition to the PhD program. We will continue to monitor this trend and actively engage our MS students through academic advising with the Graduate Program Director to address the lack of MS students applying to the PhD program.

Update to Previous Cycle's Plan for Continuous Improvement Item

Previous Cycle's Plan For Continuous Improvement (Do Not Modify):

Closing Summary

During AY 23-24, the department hopes to 1) increase MS student publications, 2) execute a new curriculum mapping exercise, and 3) work to rebalance our MS students by discipline.

The department aims to increase the number of MS student publications by changing the timeline of MS student incorporation into research activities and the format of the final capstone reports. Getting first year MS students involved in shadowing students currently working on their capstone or PhD research will help expedite the research advisor selection process and enable higher-quality scholarly products due to additional project development during the spring semester before students leave for their internship. Shifting the final capstone report from a thesis-based format to a manuscript-based format should also increase the number of MS student publications by expediting the manuscript submission process.

Given faculty turnover during AY 22-23 and the new 12-credit workload policy that the college is implementing this year, the department will undergo an additional curriculum mapping exercise to balance the new workload policy with available faculty. This will include developing discipline-specific pathways through our program that have sufficient faculty coverage to meet both the core courses and the advanced elective needs of our students. The department is in the process of hiring two additional Assistant Professors to accommodate an increase in MS student enrollment requested by the Texas Legislature. The successful onboarding and training of three new faculty members is a major objective of the department over the next year.

The discipline balance of our MS program is another major focus for the department over the next year. Even though we have worked to improve discipline balance in the past, due to faculty turnover, this past year our discipline balance was altered to avoid overburdening our incoming faculty. As the new faculty settle in and develop their research agendas, it will be important to rebalance our student distribution within the MS program, which will be experiencing a 10-student increase over the next two years. The addition of postdoctoral fellows would also help address the burden of additional MS students in the coming years.

Update of Progress to the Previous Cycle's PCI:

While it is too early to determine if the departmental changes to the capstone timeline and report formatting resulted in increased MS student publications, the faculty emphasis on MS student publications resulted in 5 peer-reviewed journal publications compared to 3 in AY 22-23 and only 1 in AY 21-22 and our highest publications per student average in program history. The department will keep the updated capstone timeline and report formatting in place for the next assessment cycle to gauge the impact of these changes since the current cohort is just now submitting their publications from their capstone projects.

The proposed curriculum mapping exercise was completed for AY 23-24; however, additional modifications will be required for the AY 24-25 assessment cycle due to the departure of a tenured Professor and the hiring of a new Assistant Professor. The discipline-specific pathways through the MS program have been mapped, although additional electives on the trace/pattern side would be beneficial. Currently, we don't have the faculty workload capacity due to faculty buyouts. The increased MS enrollment requested by the Texas Legislature continues to drive decisions regarding curriculum and faculty workload allocation. One Assistant Professor was successfully onboarded and trained in AY 23-24 to help meet the increased MS enrollments.

As our new faculty settle into their coursework and continue to develop their research agendas, we will be able to further balance our discipline distribution. Our distribution is still a little out of balance from AY 22-23, which was an intentional decision to avoid overburdening our early career faculty. Although we had a Postdoctoral Fellow, she has since found employment through another institution, and we are yet again in need of a Postdoctoral Fellow to help address the burden of additional MS students.

New Plan for Continuous Improvement Item

Closing Summary:

During AY 24-25, the department will make several changes to our annual assessment to remain consistent with our Forensic Science Education Programs Accreditation Commission (FEPAC) accreditation requirements. For example, postgraduate success will be measured at 6 months after graduation rather than 12 months. Likewise, the postgraduate success will only be calculated for students who have graduated the program (i.e., % of graduates who are employed within 6 months). These changes will be reflected in the supporting information provided in AY 24-25.

The department will continue emphasizing MS student publications through the capstone timeline and formatting modifications applied during this assessment cycle. Due to the delay between implementation and the assessment reporting period, the department will have a better feel for the impact of these changes during the AY 24-25 assessment cycle.

Given continued faculty turnover during AY 23-24, additional modifications to curriculum mapping will be implemented to balance student curriculum needs and available faculty workload. The department will also continue to work towards better discipline balance as our early career faculty continue to grow and develop. Filling the vacant Postdoctoral Fellow role would be a step in the right direction to meet our current workload deficiency.

Finally, the department will work to enhance our students' research experience to improve workplace readiness and student satisfaction. We aim to improve the percentage of employer respondents that are highly satisfied with our graduates' workplace skills and preparation in the next assessment cycle, as well as address student satisfaction concerns raised during the Postgraduate Survey.